

# Advances In Prosthodontics™

New Findings & Best Practices for Cosmetic & Restorative Dentistry

## INSIDE THIS ISSUE

### JOURNAL BRIEF #1:

Complications and Clinical Considerations of the Implant-Retained Zirconia Complete-Arch Prosthesis with Various Opposing Dentitions  
... **page 2**

### JOURNAL BRIEF #2:

Implant Survival and Prosthetic Complications of Mandibular Metal-Acrylic Resin Implant Complete Fixed Dental Prostheses  
... **page 3**

### COMPLEX CASES:

Dr. Chao's Specialized Training, Prosthodontic Treatments, and Personal Message To Fellow Dental Practitioners...  
**page 4**

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## What Material Is Best For A Full Arch Prosthesis?



When restoring a complete arch with an implant-retained full arch prosthesis, the choice of material becomes extremely important.

Acrylic surfaces on a titanium bar have been utilized for many decades now and have a high incidence of tooth fracture, veneer delamination, and occlusal surface wear. Zirconia frameworks with layering porcelain also have shown to have problems, including porcelain chipping or debonding of the titanium inserts.

In this newsletter we'll look at research comparing zirconia hybrid vs. acrylic hybrid, specifically addressing complications.

**Read more on the next page...**

## ◆ Do you want another opinion on a complex case? Or to meet and share ideas?

There are many ways we can help each other by working together on complex cases and by sharing knowledge and experience. I'd like to invite you to lunch, dinner, or an office meeting to talk more about a difficult procedure or to share ideas. With your reputation for quality dental care, and my experience with restorative treatments, we can work together on advanced cases and both benefit! I'm looking forward to talking with you on the phone or meeting in person.

**Please call or email my office with specific days and times when you are available for a meeting...**

# Complications and Clinical Considerations of the Implant-Retained Zirconia Complete-Arch Prosthesis with Various Opposing Dentitions

Gonzalez J, Triplett R. Intl Journal of Oral & Maxillofacial Implants 2017 July/August; 864-869; doi: 10.11607

## Purpose

To evaluate the performance of the implant-retained zirconia complete-arch prosthesis with various opposing dentitions.

## Materials and Methods

The 40 patients included in this retrospective case series study were treated with one or two implant-retained zirconia complete-arch prostheses (ZIRCAP) using the Zirkozahn protocol. Prettau zirconia frames were created with strategic cutbacks in the structure to extend zirconia incisal coverage of the esthetic anterior sextants and complete monolithic zirconia in the molar areas; subsequent layers of porcelain were applied to nonfunctional and esthetic areas. Patients had three possible occlusal scenarios: (1) maxillary ZIRCAP and mandibular ZIRCAP, (2) maxillary ZIRCAP and mandibular natural dentition, and (3) maxillary ZIRCAP and mandibular conventional hybrid prosthesis. Complications were recorded during follow-up appointments 3, 6, and 12 months after definitive prosthesis delivery. The mean treatment observation period was 33 months.

## Results

Eight prosthetic complications were noted for the 40 implant-retained zirconia complete-arch prostheses (18.18%), including six cases of minor porcelain chipping and two cases of debonding of the metal insert from the zirconia framework. Maxillary ZIRCAP opposing mandibular ZIRCAP and maxillary ZIRCAP opposing mandibular natural dentition occlusal scenarios presented the same complication ratio of 4. No complications were seen in the maxillary ZIRCAP opposing mandibular conventional hybrid prosthesis group, yet 16 complications were found as denture tooth fractures in 12 mandibular conventional hybrid prostheses (ratio of 0.75).

## Conclusion

The results indicate that the implant-retained zirconia complete-arch prosthesis offers acceptable performance for use as an alternative to the conventional titanium framework acrylic veneer prosthesis for complete edentulism with a lower incidence of prosthetic complications and fewer maintenance appointments. Chipping of veneering porcelain was the most common complication, but a low incidence was observed in this study. Acrylic denture teeth may represent the weakest link when restoring complete edentulism with a maxillary ZIRCAP and mandibular conventional hybrid prosthesis.

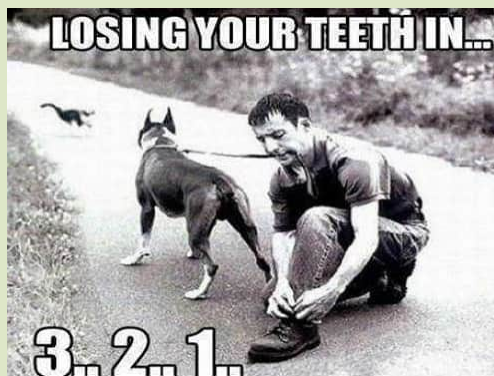
## Thoughts

When restoring a complete arch with an implant-retained full arch prosthesis, the choice of material becomes extremely important. It is our opinion that the material of choice should be determined by these factors (among others): the opposing dentition, number and location of dental implants, patient parafunctional habits and interocclusal space. If you have a patient with a broken prostheses, or other issues present (such as several missing, broken or severely worn teeth), they may be a candidate for oral rehabilitation. To discuss more, please contact me at: [drchao@pleasantonpros.com](mailto:drchao@pleasantonpros.com)

## Have A Laugh: Dogs & Teeth...

I hope I made you smile during your busy day! I take the care of patients referred to me very seriously, including knowing how to educate them so they feel comfortable.

It's my goal to help every patient understand even the most difficult procedures, so they can regain the function and esthetics they desire.



## Implant Survival and Prosthetic Complications of Mandibular Metal-Acrylic Resin Implant Complete Fixed Dental Prostheses

Priest G, Smith J, Wilson MG. J Prosthet Dent. 2014 Jun;111(6):466-75. doi: 10.1016

### Purpose

This study examined and recorded long-term implant survival and complications of patients treated with mandibular metal-acrylic resin implant complete fixed dental prostheses delivered in a private practice setting over a 22-year period.

### Materials and Methods

Records were examined for all patients in the authors' private prosthodontic practices who between April 1988 and April 2011 had received mandibular metal-acrylic resin implant complete fixed dental prostheses supported by 4 to 8 implants and who had completed at least 1 year of follow-up after implant placement.

### Results

Forty-five patients who had received a total of 247 implants met the inclusion criteria. In the course of the 1- to 22-year follow-up period (mean 8 years and 3 months), only 2 implants failed (0.81%) in 1 patient before definitive prosthetic reconstruction, which resulted in a cumulative implant survival rate of 97.78%  $\pm$  2.2%. No screws were found to be loose or fractured. Individual denture-tooth fracture and chairside repair occurred 10 times in 5 patients. Because of wear, all the teeth had to be replaced by the laboratory 10 times in 8 patients between 5 and 12 years. Framework fractures occurred 6 times and affected 3 prostheses (twice for each of the 3 patients).

### Conclusion

Implant failure was rare with this traditional mode of treatment and occurred before definitive restoration. The replacement of denture teeth due to wear or fracture was the most common prosthetic complication, and cantilevered frameworks exhibited a high risk of fracture when opposed by fixed prostheses. No fractures occurred for any of the frameworks opposed by complete dentures or removable implant prostheses.

### Thoughts

When restoring a complete arch with an implant-retained full arch prosthesis, the choice of material becomes extremely important. It is my opinion that the material of choice should be determined by these factors (among others):

- the opposing dentition,
- number and location of dental implants,
- patient parafunctional habits and
- interocclusal space.

If you would like to discuss more, please contact me at:

[drchao@pleasantonpros.com](mailto:drchao@pleasantonpros.com)



## Do you have a patient with a broken prosthesis? Or another complex case?

If you have a question about a case and want another opinion, give my office a call. Or, if there's a case that you want to work together on, please fill out and send in the enclosed referral form.

My office and I will take great care of your patient and keep you informed. Other dentists refer to me as **The Complex Case Specialist™** because I perform complex cases every day.



# Dr. Maggie T. Chao

DMD, Prosthodontist ♦ The Complex Case Specialist™



*Dr. Maggie Chao works with dental professionals near Pleasanton and the Walnut Creek areas.*

## About Pleasanton Prosthodontics:

Pleasanton Prosthodontics is a specialty practice limited to fixed and removable prostheses, dental implants, and all phases of esthetic dentistry. Dr. Chao's prosthodontic training and private practice experience make treatments of complex cases more successful, including the following examples:

- Patients with ill-fitting dentures, severely worn or damaged teeth can receive a single dental implant or a full arch of natural-looking teeth.
- Patients who have suffered from traumatic injury, congenitally missing teeth, or a chronic condition can receive oral prostheses, which may be a combination of dental implants, crowns, bridges, or veneers.
- Patients with severe neglect of their oral health can receive a full reconstruction to restore function & esthetics.



## Personal Message To Fellow Dental Practitioners:

“As the referring dentist, you know your patient's mouth and have key insight into your patient's needs. I want to work with you to provide your patients with the best possible treatment outcomes. I will treat your patient in a manner that will reflect well on you and strengthen your relationship with your patient. I am here to make you look good! When your patient's care is completed, they are referred back to your office for their ongoing dental care. I am grateful for your collegueship and trust with your patients!”

## ◆ Why other dental professionals work with a Prosthodontist

Prosthodontists are specialists in implant, esthetic, and reconstructive dentistry.

### 1. You have a patient requiring complex treatment outside of your typical practice.

Examples include patients with vertical dimension discrepancies, severely resorbed ridges, inadequate interarch space, TMJ, severe bruxism, traumatic tooth loss, or congenital abnormalities.

### 2. You have a patient with complex needs that may drain your time.

If your patient may require treatment from several specialists, Prosthodontists can help because they are trained to appropriately stage and manage complex treatment plans.

### 3. You have a demanding patient who wants perfect esthetics.

Examples include patients with a high smile line or needing a single tooth replacement in the esthetic zone. A Prosthodontist is trained in selecting the best solutions for high-demand patients.

### 4. You have a question and want to discuss a case with a colleague to ease your mind.

A Prosthodontist can be an excellent resource for you to ask questions because they are trained in many types of complicated treatments. For example, you may want to consult or refer to a Prosthodontist for complex implant-supported restorations. A Prosthodontist can work with you or complete the treatment for you to achieve the best in both function and esthetics.